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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,410	09/23/2003	Takaaki Ikegami	243105US0	1083
22850	7590	11/17/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER	
			DOTE, JANIS L	
		ART UNIT	PAPER NUMBER	
		1756		

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/667,410

Applicant(s)

IKEGAMI ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/7/04; 6/4/04; 8/31/04
- 4) ☐ Interview Summary (PTO-413).  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. The disclosure is objected to because of the following informalities:

The specification at page 32, lines 3-6, discloses that an organic compound containing a carbonic acid can be a copolymer using polyester resin, acrylate resin, acrylic acid or methacrylic acid, or a styrene-acrylic copolymer . . . ."

(emphasis added). Carbonic acid is defined as hydroxyformic acid, HO-COOH. See Grant & Hackh's Chemical Dictionary, 5<sup>th</sup> edition, page 114. Polyester resins, acrylate resin, (meth)acrylic acid resins usually comprise carboxylic acids, e.g. R-COOH, not carbonic acids.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In claim 2, the phrase "organic compound having an acid value of 10 mgKOH/g to 400 mgKOH/g, is a polycarboxylic acid" lacks antecedent basis in the specification. See page 32, lines 1-2, which discloses a polycarbonic acid, not a polycarboxylic acid. Carbonic acid is defined as hydroxyformic acid, HO-COOH. See Grant & Hackh's Chemical Dictionary, 5<sup>th</sup> edition, page 114.

(2) In claim 3, the recitation "is one of a polyester resin, acrylic resin, a copolymer comprising these structures, and a mixture thereof" (emphasis added), lacks antecedent basis in the specification. The instant specification does not disclose mixtures comprising a polyester resin, an acrylic resin, or a copolymer comprising these structures.

(3) In claims 22 and 24, the recitation "a 'digital method' where the latent electrostatic image is written on the electrophotographic photoconductor by a LD or LED" lacks antecedent basis in the specification.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 17, 19, 21, 23, and 25 are indefinite in the phrase "at least one of compounds represented by the following formulas 1 and 2" (emphasis added) because it is not clear

whether the claims require just one compound of either formula 1 or 2, or both compounds of formulas 1 and 2.

Claims 1, 19, 21, 23, and 24 are indefinite in the phrase "R<sup>1</sup>, R<sup>2</sup> are substituted or unsubstituted alkyl groups or aromatic hydrocarbons, may be identical or different, and R<sup>1</sup>, R<sup>2</sup> may also be bonded together to form a substituted or unsubstituted heterocycle containing a nitrogen atom" (emphasis added) because it is not clear how the groups R<sup>1</sup> and R<sup>2</sup> are simultaneously substituted or unsubstituted alkyl groups or aromatic hydrocarbons, while being bonded together to form a substituted or unsubstituted heterocycle containing a nitrogen atom.

Claim 3 is indefinite in the phrase "one of a polyester resin, acrylic resin, a copolymer comprising these structures, and a mixture thereof" (emphasis added) because it is not clear whether the claim requires just one of the recited members or a combination of all four members.

Claim 16 is indefinite in the phrase "contains at least one of a polycarbonate resin and a polyarylate resin as the binder resin" (emphasis added) because it is not clear whether the claim requires that the binder resin comprises only one of the resins or a combination of both resins.

Claims 18 and 20 are indefinite in the phrase "antioxidant is one of a hydroquinone compound and a hindered amine"

(emphasis added) because it is not whether the claims require the combination of both compounds or only one of the compounds.

Claims 22 and 24 are indefinite in the phrase "a 'digital method' where the latent electrostatic image is written on the electrophotographic photoconductor by a LD or LED" because it is not clear what is meant by the term "a digital method." The instant specification does not define the term. Nor does the instant specification disclose the steps involved in a "digital method."

Claim 25 is also indefinite in the phrase "at least one of a charger . . . a cleaning unit . . . and a developing unit . . . ." (emphasis added) because it is not clear whether the claim requires only one of the recited components or a combination of all three components.

5. Claims 1-25 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The prior art of record does not teach or suggest an electrophotographic photoconductor comprising an outermost layer as recited in the instant claims.

European Patent 1,205,808 A1 (EP'808) discloses a photoconductor comprising a conductive support, a charge

generation layer, photoconductive layer, and an outermost layer comprising an  $\alpha$ -alumina filler having a primary particle size of about 0.3  $\mu\text{m}$ , and a pH of from 8 to 9, a polyester resin having an acid value of 35 mg KOH/g, a polycarbonate resin, and the charge transport molecule (12). See compound (12) at page 38, and example 1 at pages 48-49. The polyester resin having an acid value of 35 mg KOH/g meets the organic compound having an acid value of 10 to 400 mg KOH/g recited in instant claims 1, 19, 21, 23, and 25. The outermost layer disclosed by EP'808 meets the outermost layer compositional limitations recited in instant claims 1-3, 5-7, 9-11, 13, 14, 16, and 21-25, but for the presence of "at least one of compounds represented by . . . formulas 1 and 2" recited in the instant claims. EP'808 further teaches that antioxidant such as a hindered amine or a hydroquinone compound can be added to the coating of the outermost layer as recited in instant claims 17-20. EP'808, paragraph 0178. EP'808 teaches that it is preferred that the outermost layer include a charge transport material (CTM) to improve the charge injection property and charge transport property of the layer and to "prevent increase of residual potential and deterioration of photosensitivity of the resultant photoreceptor." Paragraph 0169. EP'808 does not limit the type of charge transport material used. Paragraphs 011-012, 0170,

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and 0171. However, EP'808 does not teach or suggest that the charge transport material used in its outermost layer can be one of the compounds recited in the instant claims.

US 3,730,712 (Futaki) discloses a photoconductive p-xylenediamine compounds. See col. 1, lines 55-70. However, the p-xylenediamine compounds are outside the scope of the compounds represented by formulas 1 or 2 recited in the instant claims. The p-xylenediamine compounds of Futaki only comprise a phenylene group, not biphenylene groups as required by the formulas 1 and 2. Furthermore, the integer "n" in formulas 1 and 2 is defined to be an "integer in the range of 2 to 4," so that the nitrogen atoms are bonded to the phenylene group via an ethylene, a propylene, or a butylene group. In the p-xylenediamine compounds of Futaki, the nitrogen atoms are bonded to the phenylene group via a methylene group.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Nov. 12, 2004

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1706